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Holly D. Kozlowski

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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant: Jiping WANG et al : Paper No.:
Serial No.: 09/784,541 : Group Art Unit: 1751
Filing Date: February 15, 2001 : Examiner: C. Boyer

For: **Method for the Use of Hydrophobic Bleaching Systems in Textile Preparation**

TRANSMITTAL OF APPEAL BRIEF

Mail Stop Appeal Brief - Patents
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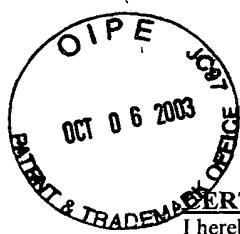
Dear Sir:

Submitted herewith in triplicate is an Appeal Brief in support of the Notice of Appeal filed by Certificate of Mail on July 28, 2003 and received by the U. S. Patent and Trademark Office on July 31, 2003. Please charge the \$320.00 Appeal fee to our Visa credit card. Form PTO-2038 is attached. Please charge any additional fees required in connection with this communication to Deposit Account No. 04-1133.

Respectfully submitted,

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APPEAL BRIEF

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Alexandria, VA 22313-1450

Dear Sir:

The present Appeal Brief is submitted in support of the Notice of Appeal filed by Certificate of Mail on July 28, 2003 and received by the U.S. Patent and Trademark Office on July 31, 2003.

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is the assignee of the present application, The Procter & Gamble Company.

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II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to the Appellants, the Appellants' undersigned legal representative or the assignee which are believed will directly effect or be directly effected by or having a bearing on the Board's decision in the present appeal.

However, for the Board's information, it is noted that appeals are being pursued in copending applications Serial Nos. 09/784,489 and 09/784,677, which the Board may find of interest to the present appeal.

III. STATUS OF THE CLAIMS

Claims 1-33 are pending and stand rejected. A complete copy of the pending claims is set forth in the Appendix.

IV. STATUS OF AMENDMENT FILED SUBSEQUENT TO REJECTION ON APPEAL

No amendment was submitted to final rejection. First and Second Requests for Reconsideration were presented but did not contain any claim amendments.

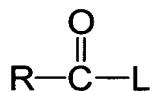
V. SUMMARY OF THE INVENTION

The present invention relates generally to methods which use hydrophobic bleaching systems in textile preparations (specification, page 1, lines 12-13).

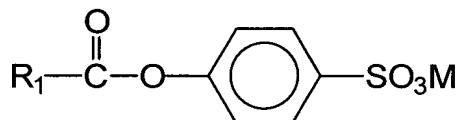
More particularly, according to independent claim 1, the invention is directed to a method for the preparation of a non-finished textile component comprising the steps of providing a non-finished textile component, saturating said textile component with an aqueous bleaching solution comprising hydrogen peroxide and a hydrophobic bleaching agent, and allowing said bleaching solution to remain in contact with said textile component for a period of time sufficient to bleach said textile component. The resultant treated textile

component has a whiteness value on the CIE index of at least about 70 or a fiber degradation increase of less than about 25%. Claim 26 is directed to the product produced by the process of Claim 1.

Claim 2 further defines the hydrophobic bleaching agent of claim 1 as a hydrophobic bleach activator or a hydrophobic pre-formed peracid. Claim 3 defines the bleaching solution of claim 2 as comprising hydrogen peroxide and a hydrophobic bleach activator selected from a specified group of compounds. Claim 4 further specifies the hydrophobic bleach activator of claim 3 is a bleach activator selected from the general formula:



wherein R is an alkyl chain having from about 7 to about 12 carbon atoms and L is a leaving group, the conjugate acid of which has a pKa from about 4 to about 13. Claim 5 further defines the bleach activator of claim 4 as an alkanoyloxybenzenesulfonate of the formula:



wherein R₁ is an alkyl group having from about 7 to about 11 carbon atoms and M is a suitable cation.

According to claim 6, the bleaching solution of claim 1 further includes an ingredient selected from the group consisting of wetting agents, sequestering agents, stabilizing agents, desizing agents, scouring agents and mixtures thereof. Claim 7 recites that in the method of claim 3 the bleaching solution contains from about 1 to about 20 g/L of hydrogen peroxide, while claim 8 recites that the molar ratio of hydrophobic bleach activator to hydrogen peroxide in the bleaching solution in the method of claim 3 ranges from about 1:1 to about 1:50.

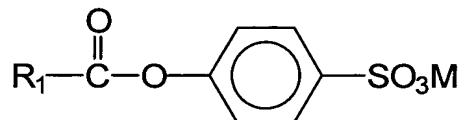
Claim 9 recites that in the method of claim 1, the textile component remains in contact with the bleaching solution for from about 15 to about 180 minutes, while claim 10 recites that in the method of claim 9, the bleaching solution is at a temperature of from about 20 to about 90 °C. According to claims 11 and 13, in the method of claim 8, the bleaching solution is at a temperature of from about 50 to about 80°C and the textile component remains in contact with said bleaching solution for from about 30 to about 60 minutes (claim 11) and the ratio of said bleaching solution to said textile component is from about 5:1 to about 100:1 (claim 13).

Claim 12 recites that in the method of claim 1, the bleaching solution further comprises from about 0.5 to about 20 g/L of sodium hydroxide. Claim 14 recites that in the method of claim 1, the textile component experiences a fabric strength reduction of less than about 10% during said method. According to claim 15, in the method of claim 12, the treated textile component experiences a fiber degradation increase of less than about 25%.

Claims 16 and 17 respectively recite that the method of claim 1 further comprises the step of de-sizing said non-finished textile component prior to contact with said bleaching solution (claim 16) and the step of scouring said non-finished textile component prior to contact with said bleaching solution (claim 17).

As defined by independent claim 18, the invention is directed to a method for the batch preparation of a woven textile fabric comprising the steps of a) providing an incoming non-finished woven fabric; b) passing said fabric to an aqueous bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating said bleaching solution to a temperature of from about 20 to about 90 °C and allowing said bleaching solution to contact said fabric for a period of time of from about 15 to about 180 minutes. Claim 27 is directed to the product produced by the process of Claim 18.

Claim 19 recites that in the method of claim 18, the bleach activator is an alkanoyloxybenzenesulfonate of the formula:



wherein R₁ has from about 5 to about 17 carbon atoms and M is a suitable cation.

Claim 20 recites that in the method of claim 18, the bleaching solution further includes an ingredient selected from the group of wetting agents, sequestering agents, stabilizing agents, de-sizing agents, scouring agents and mixtures thereof. Claim 21 recites that in the method of claim 18, the bleaching solution is at a temperature of from about 50 to about 80°C and said textile component remains in contact with said bleaching solution for from about 30 to about 60 minutes.

According to claim 22, the bleaching solution in the method of claim 18 contains from about 1 to about 20 g/L of hydrogen peroxide, while according to claim 23, the molar ratio of hydrophobic bleach activator to hydrogen peroxide in the bleaching solution in the method of claim 18 ranges from about 1:1 to about 1:50.

Claim 24 recites that in the method of claim 18, the textile component remains in contact with said bleaching solution for from about 30 to about 60 minutes. Claim 25 recites that in the method of claim 18, the bleaching solution is at a temperature of from about 50 to about 80 °C.

According to independent claim 28, the invention is directed to a substrate comprising a collection of non-finished bleached textile components, wherein the substrate has a whiteness value on the CIE index of greater than about 70 and has experienced a fabric strength reduction of less than about 10%.

Claim 29 recites that in the substrate of claim 28, the treated textile component experiences a fiber degradation increase of less than about 25%. Claim 30 recites that the substrate of claim 28 has a wettability index of less than about 10%.

As defined by claim 31, the invention is directed to a method for improving the wettability loss of textile components. The method comprises the steps of a) providing an incoming non-finished woven fabric; b) passing said fabric to an aqueous bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating the bleaching solution to a temperature of from about 20 to about 90 °C and allowing the bleaching solution to contact the fabric for a period of time of from about 15 to about 180 minutes.

Claim 32 recites that the resultant treated textile component from the method of claim 31 has a whiteness value on the CIE index of greater than about 70. Claim 33 recites that the non-finished textile component fibers employed in the method of claim 31 are selected from the group consisting of cotton, linen, jute, wool, silk, rayon, lyocell and combinations thereof.

VI. ISSUES ON APPEAL

The following issues are presented for review by the Board:

A. The rejection of claims 1-15 and 18-33 under 35 U.S.C. §102(b) as being anticipated by the Willey et al published PCT application WO 94/28106.

B. The rejection of claims 1-33 under 35 U.S.C. §102(b) as being anticipated by the Croud et al published PCT application WO 95/21283.

C. The rejection of claims 1-15 and 18-33 under 35 U.S.C. §102(b) as being anticipated by the Showell et al U.S. Patent No. 5,419,847.

D. The rejection of claims 1-15 and 18-33 under 35 U.S.C. §102(b) as being anticipated by the Francis et al U.S. patent No. 5,106,528.

E. The rejection of claims 1-15 and 18-33 under 35 U.S.C. §102(b) as being anticipated by the Thompson et al.

VII. GROUPING OF THE CLAIMS

Appellants submit that:

A. With respect to the above noted issue A. on appeal, Appellants submit that independent claims 1, 18, 28 and 31 are independently patentable, as are claims 11, 12, 14, 15, 25, 29, 30 and 32. Appellants admit that claims 2-10, 13, 19, 20, 22-24, 26, 27 and 33 stand or fall together with the claims from which they depend.

B. With respect to the above noted issue B. on appeal, Appellants submit that independent claims 1, 18, 28 and 31 are independently patentable, as are claims 12, 14, 15, 29, 30 and 32. Appellants admit that claims 2-11, 13, 16, 17, 19-27 and 33 stand or fall together with the claims from which they depend.

C. With respect to the above noted issue C. on appeal, Appellants submit that independent claims 1, 18, 28 and 31 are independently patentable, as are claims 11, 12, 14, 15, 21, 25, 29, 30 and 32. Appellants admit that claims 2-10, 13, 19, 20, 22-24, 26, 27 and 33 stand or fall together with the claims from which they depend.

D. With respect to the above noted issue D. on appeal, Appellants submit that independent claims 1, 18, 28 and 31 are independently patentable, as are claims 11, 12, 14, 15, 21, 25, 29, 30 and 32. Appellants admit that claims 2-10, 13, 19, 20, 22-24, 26, 27 and 33 stand or fall together with the claims from which they depend.

E. With respect to the above noted issue E. on appeal, Appellants submit that independent claims 1, 18, 28 and 31 are independently patentable, as are claims 11, 12, 14, 15, 21, 25, 29, 30 and 32. Appellants admit that claims 2-10, 13, 19, 20, 22-24, 26, 27 and 33 stand or fall together with the claims from which they depend.

Reasons in support of the independent patentability of the respective claims are set forth below.

VIII. ARGUMENTS

As will be set forth in detail below, Appellants submit that the methods, products and substrates defined by claims 1-33 are not anticipated by any of Willey et al, Croud et al, Showell et al, Francis et al or Thompson et al, whereby the rejections under 35 U.S.C. §102(b) should be reversed. Favorable action by the Board is respectfully requested.

A. The Invention

According to claim 1, the invention is directed to a method for the preparation of a non-finished textile component. The method comprises providing a non-finished textile component, saturating the textile component with an aqueous bleaching solution comprising hydrogen peroxide and a hydrophobic bleaching agent, and allowing the bleaching solution to remain in contact with the textile component for a period of time sufficient to bleach the textile component. The resulting treated textile component has a whiteness value on the CIE index of at least about 70 or a fiber degradation increase of less than about 25%.

According to claim 18, the invention is directed to a method for the batch preparation of a woven textile fabric. The method comprises providing an incoming non-finished woven fabric, passing the fabric to an aqueous bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating the bleaching solution to a temperature of from about 20 to about 90°C, and allowing the bleaching solution to contact the fabric for a period of time of from about 15 to about 180 minutes.

Claims 26 and 27 are directed to products produced by the processes of claims 1 and 18, respectively. Claim 28 is directed to a substrate comprising a collection of non-finished

bleached textile components wherein the substrate has a whiteness value on the CIE index of greater than about 70 and has experienced fabric strength reduction of less than about 10%.

Finally, according to claim 31, the invention is directed to a method for improving the wettability loss of textile components. The method comprises providing an incoming non-finished woven fabric, passing the fabric to an aqueous bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating the bleaching solution to a temperature of from about 20 to about 90°C, and allowing the bleaching solution to contact the fabric for a period of time of from about 15 to about 180 minutes.

As set forth in the present specification, for example at page 18, beginning at line 6, non-finished textile components are materials that have not been dyed, printed or otherwise provided a finishing step such as a durable press finish. One of ordinary skill in the art will therefore recognize that the textile component of the claimed methods, products and substrates has not been passed through a garment or other manufacturing process involving cutting and sewing of the material. As also set forth in the specification, for example beginning at page 1, line 29, bleaching of such non-finished textile components is desirable in order to destroy naturally occurring color bodies and provide a uniform white appearance for consumer-acceptable whites and/or a uniform color base for subsequent dying or printing of the components.

B. Claims 1-15 and 18-33 are Not Anticipated by Willey et al

The methods, products and substrates defined by claims 1-15 and 18-33 are not anticipated by Willey et al.

1. The Rejection

The Examiner asserts that Willey et al teach bleaching compositions for removing stains from textiles and that one of ordinary skill in the art would not make a distinction

between stain removal from finished or non-finished textiles. The Examiner further asserts that the bleaching compositions of the reference would inherently be as effective on non-finished textiles as on finished textiles.

2. The Claimed Invention is Not Anticipated

In contrast to the present methods, products and substrates which employ non-finished textile components, Willey et al relate to bleaching and/or laundering of finished textile components, namely garments, and Appellants find no teaching or suggestion in this reference relating to any method, product or substrate employing a non-finished textile component. For example, Willey et al disclose that their invention "relates to laundry detergents and methods which employ one or more types of deterotive enzymes and a bleaching system" (page 1, lines 10-12). Further, Willey et al disclose the laundry detergent compositions provide effective and efficient surface cleaning of fabrics to remove stains and/or soils from the fabrics (page 7, lines 17-19).

The Examiner has asserted that one of ordinary skill in the art would not make a distinction between stain removal from finished or non-finished textiles. Appellants respectfully disagree. As discussed in the background portion of the present application, a common pretreatment step for natural fibers and textiles thereof is a bleaching step to destroy naturally occurring color bodies in the fibers and textiles. One of ordinary skill will appreciate that this bleaching treatment is not directed to a soil or stain which has been deposited on a consumer fabric, to which laundry detergents as disclosed by Willey et al are directed, and which are often provided with some form of soil or stain repelling treatment during finishing, but, rather, to color bodies which are inherent to the fibers or textiles and which in the past have required severe bleaching conditions to provide acceptable whiteness or a uniform color base for subsequent dying, often resulting in textile damage.

Moreover, the Willey et al teachings relate to laundering of finished textile components and Appellants find no teaching or suggestion by Willey et al relating to any method, product or substrate employing a non-finished textile component. Thus, not only would one of ordinary skill in the art make a distinction between stain removal from finished or non-finished textiles, Willey et al provide no teaching of a treatment method for non-finished textiles.

Specifically, Appellants find no teaching by Willey et al of a method as recited in claim 1 "for the preparation of a non-finished textile component" wherein the bleaching solution is allowed to remain in contact with said textile component for a period of time sufficient to bleach the textile component wherein the resultant treated textile component has a whiteness value on the CIE index of at least about 70 or a fiber degradation increase of less than about 25%. Rather, as discussed in the specification, conventional bleaching of non-finished textile components typically results in significantly greater fiber degradation as a result of the rigorous bleaching conditions, or, if mild conditions are employed, does not result in bleaching of the non-finished component.

Further, Appellants find no teaching by Willey et al of a method as defined by claim 18 for batch preparation of a woven textile by providing an incoming non-finished woven fabric, passing the fabric to an aqueous bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating the bleaching solution to a temperature of from about 20 to about 90 °C, and allowing the bleaching solution to contact the fabric for a period of time of from about 15 to about 180 minutes.

Further, Appellants find no teaching by Willey et al of a substrate comprising a collection of non-finished bleached textile components, particularly wherein the substrate has a whiteness value on the CIE index of greater than about 70 and has experienced a fabric

strength reduction of less than about 10%, as recited in claim 28. To the contrary, as discussed in the specification, conventional bleaching of non-finished textile components typically results in significantly greater strength reductions as a result of the rigorous bleaching conditions, or, if mild conditions are employed, does not result in bleaching of the non-finished component to the extent required by claim 28.

Finally, Appellants find no teaching by Willey et al of a method "for improving the wettability loss of textile components," particularly such a method comprising providing an incoming non-finished woven fabric, passing the fabric to an aqueous bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating the bleaching solution to a temperature of from about 20 to about 90 °C, and allowing the bleaching solution to contact the fabric for a period of time of from about 15 to about 180 minutes.

The Examiner further asserted that the bleaching composition of Willey et al would inherently be as effective on non-finished textiles as on finished textiles. Appellants submit that this conclusion is irrelevant to the issue of patentability since, as noted above, Willey et al fail to teach any method, product or substrate employing a non-finished textile component.

Anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference, *In re Robertson*, 49 U.S.P.Q.2d 1949, 1950 (Fed Cir. 1999). In view of the failure of Willey et al to teach methods, products or substrates employing non-finished textile components as required by the present claims, and the failure of Willey et al to teach the specific limitations of claims 1, 18, 28 and 31, Willey et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate the present claims under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

3. Claims 11, 21 and 25 Are Further Patentably Distinguishable

According to claim 11, the bleaching solution in the method of claim 8 is at a temperature of from about 50 to about 80°C and the textile component remains in contact with said bleaching solution for from about 30 to about 60 minutes. Claim 21 recites that in the method of claim 18, the bleaching solution is at a temperature of from about 50 to about 80°C and the textile component remains in contact with the bleaching solution for from about 30 to about 60 minutes. Claim 25 recites that in the method of claim 18, the bleaching solution is at a temperature of from about 50 to about 80 °C.

Appellants find no teaching of such methods by Willey et al. Rather, the exemplary teachings of Willey et al employ laundering at 35°C for 12 minutes (page 23, line 3) and at 40°C for 40 minutes (page 24, line 4). Additionally, Appellants find no teaching or suggestion that such treatment temperatures and times as recited in the claims are sufficient for providing bleaching of a non-finished textile component as required by claim 11. In view of the failure of Willey et al to teach these limitations, Willey et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate claims 11, 21 and 25 under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

4. Claim 12 is Further Patentably Distinguishable

Claim 12 recites that in the method of claim 1, the bleaching solution further comprises from about 0.5 to about 20 g/L of sodium hydroxide. Appellants find no teaching by Willey et al of a method employing sodium hydroxide, particularly in an amount as required by claim 12. In view of the failure of Willey et al to teach these limitations, Willey et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate claim 12 under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

5. **Claims 14, 15, 29, 30 and 32 Are Further Patentably Distinguishable**

Claim 14 recites that in the method of claim 1, the textile component experiences a fabric strength reduction of less than about 10% during said method. According to claim 15, in the method of claim 12, the treated textile component experiences a fiber degradation increase of less than about 25%. Claim 29 recites that in the substrate of claim 28, the treated textile component experiences a fiber degradation increase of less than about 25%. Claim 30 recites that the substrate of claim 28 has a wettability index of less than about 10%. Claim 32 recites that the resultant treated textile component from the method of claim 31 has a whiteness value on the CIE index of greater than about 70.

Appellants find no teaching by Willey et al of a non-finished textile bleaching method providing a fabric strength reduction of less than 10%, as required by claim 14, or a fiber degradation increase of less than about 25%, as required by claim 15. To the contrary, typical bleaching methods for non-finished textiles employing hydrogen peroxide result in significant fabric strength reductions and fiber degradations. Similarly, Appellants find no teaching by Willey et al of a non-finished bleached textile having a whiteness value on the CIE index of greater than about 70 and experiencing a fabric strength reduction of less than about 10% and a fiber degradation increase of less than about 25%, as required by claim 29, or further having a wettability index of less than about 10%, as required by claim 30. The conventional non-finished textile bleaching processes typically sacrifice fabric strength for whiteness or whiteness for fabric strength.

Finally, Appellants find no teaching or suggestion by Willey et al that allowing an aqueous bleaching solution at a temperature of from about 20 to about 90°C and comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator to contact non-finished textile fabric for a period of time of from about 15 to about 180 minutes results in a treated textile component having a whiteness value on

the CIE index of greater than about 70. To the contrary, typical non-finished textile treating methods conducted at or below about 90°C were not effective in obtaining the recited whiteness.

In view of the failure of Willey et al to teach these limitations, Willey et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate claims 14, 15, 29, 30 and 32 under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

C. Claims 1-33 are Not Anticipated by Croud et al

The methods, products and substrates defined by claims 1-33 are not anticipated by Croud et al.

1. The Rejection

The Examiner asserts that Croud et al teach bleaching compositions for removing stains from textiles and that one of ordinary skill in the art would not make a distinction between stain removal from finished or non-finished textiles. The Examiner further asserts that the bleaching compositions of the reference would inherently be as effective on non-finished textiles as on finished textiles.

2. The Claimed Invention is Not Anticipated

In contrast to the present methods, products and substrates, Croud et al disclose a process for bleaching textiles wherein fibers are formed into a yarn in a first step, a peroxygen source and a bleach activator compound which is an acyl donor are reacted in an aqueous solution to form a product solution comprising an oxidizing compound which is a stronger oxidizing agent than the peroxygen source, the step being carried out at an acidic pH below the pKa of the carboxylic acid corresponding to the acyl group of the activator, and, in a third step, contacting the yarn with the product solution at an acidic pH no greater than the aforementioned pKa (page 5, lines 19-32).

At page 29, Example 2, Croud et al disclose the use of TAED, DADHT and SNOBS as activators for peroxygen bleaches at acidic pH for stains in solution and on fabrics. Specifically, cotton cloth was stained with chlorophyll. Thus, Example 2 of Croud et al is not directed to a method for the preparation of non-finished textile component as recited in claim 1, a method for the batch preparation of a woven textile fabric comprising an incoming non-finished woven fabric as recited in claim 18; a collection of non-finished bleached textile components as recited in claim 28 or a method for improving the wettability loss of textile components comprising, inter alia, providing an incoming non-finished woven fabric as recited in claim 31. Rather, Example 2 of Croud et al is directed to stain removal. In view of these deficiencies in the teachings of Croud et al, Croud et al do not anticipate the presently claimed methods, products or substrates.

Further, the methods of the present invention employ hydrophobic bleaching agent (claim 1) or hydrophobic bleach activator (claims 18 and 31). While Croud et al broadly disclose numerous bleach components, the examples of Croud et al only employ bleaching components which, at the acidic pH of Croud et al, are hydrophilic. As noted in the present application, for example at page 3, beginning at line 24, it is believed that the hydrophobic bleaching components of the present invention provide better absorbency on the non-finished textiles and better wetting of the surfaces than conventional peroxide bleaching techniques and hydrophilic activators, such as those exemplified by Croud et al. Hydrophobic bleaching components form the active bleaching species, peracid, on the surface of the fabric, allowing a longer time on the surface of the fabric. Hydrophilic activators, meanwhile, form peracid in solution and must then undergo a fabric-solution interaction, which is less efficient. As a result, the hydrophobic bleaching components of the presently claimed methods provide superior bleaching and whiteness while minimizing fiber damage and strength reduction. Croud et al provide no teaching, suggestion or recognition in this regard, and, in fact, the

exemplary examples of Croud et al teach away from the present methods by their use of hydrophilic activators.

The Examiner has asserted that one of ordinary skill in the art would not make a distinction between stain removal from finished or non-finished textiles. Appellants respectfully disagree. As noted above and discussed in the background portion of the present application, a common pretreatment step for natural fibers and textiles thereof is a bleaching step to destroy naturally occurring color bodies in the fibers and textiles. One of ordinary skill will appreciate that this bleaching treatment is not directed to a soil or stain which has been deposited on fabric, to which the examples disclosed by Croud et al are directed, but, rather, to color bodies which are inherent to the fibers or textiles and which in the past have required severe bleaching conditions to provide acceptable whiteness or a uniform color base for subsequent dying, often resulting in textile damage.

Specifically, Appellants find no teaching by Croud et al of a method as recited in claim 1 "for the preparation of a non-finished textile component" wherein the bleaching solution is allowed to remain in contact with said textile component for a period of time sufficient to bleach the textile component wherein the resultant treated textile component has a whiteness value on the CIE index of at least about 70 or a fiber degradation increase of less than about 25%. Rather, as discussed in the specification, conventional bleaching of non-finished textile components typically results in significantly greater fiber degradation as a result of the rigorous bleaching conditions, or, if mild conditions are employed, does not result in bleaching of the non-finished component.

Further, Appellants find no teaching by Croud et al of a method as defined by claim 18 for batch preparation of a woven textile by providing an incoming non-finished woven fabric, passing the fabric to an aqueous bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating

the bleaching solution to a temperature of from about 20 to about 90 °C, and allowing the bleaching solution to contact the fabric for a period of time of from about 15 to about 180 minutes.

Further, Appellants find no teaching by Croud et al of a substrate comprising a collection of non-finished bleached textile components, particularly wherein the substrate has a whiteness value on the CIE index of greater than about 70 and has experienced a fabric strength reduction of less than about 10%, as recited in claim 28. To the contrary, as discussed in the specification, conventional bleaching of non-finished textile components typically results in significantly greater strength reductions as a result of the rigorous bleaching conditions, or, if mild conditions are employed, does not result in bleaching of the non-finished component to the extent required by claim 28.

Finally, Appellants find no teaching by Croud et al of a method "for improving the wettability loss of textile components," particularly such a method comprising providing an incoming non-finished woven fabric, passing the fabric to an aqueous bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating the bleaching solution to a temperature of from about 20 to about 90 °C, and allowing the bleaching solution to contact the fabric for a period of time of from about 15 to about 180 minutes.

As Croud et al do not disclose each and every element of the present claims, either expressly or inherently, Croud et al do not anticipate the present claims under 35 U.S.C. §102. Accordingly, the rejection of the present claims should be reversed.

3. Claim 12 is Further Patentably Distinguishable

Claim 12 recites that in the method of claim 1, the bleaching solution further comprises from about 0.5 to about 20 g/L of sodium hydroxide. Appellants find no teaching by Croud et al of a method employing sodium hydroxide, particularly in an amount as

required by claim 12. Rather, Croud et al teach the necessity of a low pH, in fact lower than the pKa of the carboxylic acid corresponding to the acyl group of the activator. One skilled in the art will therefore appreciate that the method of claim 12 is conducted at an alkaline pH, directly opposite to the teachings of Croud et al. In view of the failure of Croud et al to teach these limitations, Croud et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate claim 12 under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

4. Claims 14, 15, 29, 30 and 32 Are Further Patentably Distinguishable

Claim 14 recites that in the method of claim 1, the textile component experiences a fabric strength reduction of less than about 10% during said method. According to claim 15, in the method of claim 12, the treated textile component experiences a fiber degradation increase of less than about 25%. Claim 29 recites that in the substrate of claim 28, the treated textile component experiences a fiber degradation increase of less than about 25%. Claim 30 recites that the substrate of claim 28 has a wettability index of less than about 10%. Claim 32 recites that the resultant treated textile component from the method of claim 31 has a whiteness value on the CIE index of greater than about 70.

Appellants find no teaching by Croud et al of a non-finished textile bleaching method providing a fabric strength reduction of less than 10%, as required by claim 14, or a fiber degradation increase of less than about 25%, as required by claim 15. To the contrary, typical bleaching methods for non-finished textiles employing hydrogen peroxide result in significant fabric strength reductions and fiber degradations. Similarly, Appellants find no teaching by Croud et al of a non-finished bleached textile having a whiteness value on the CIE index of greater than about 70 and experiencing a fabric strength reduction of less than about 10% and a fiber degradation increase of less than about 25%, as required by claim 29, or further having a wettability index of less than about 10%, as required by claim 30. The

conventional non-finished textile bleaching processes typically sacrifice fabric strength for whiteness or whiteness for fabric strength.

Finally, Appellants find no teaching or suggestion by Croud et al that allowing an aqueous bleaching solution at a temperature of from about 20 to about 90°C and comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator to contact non-finished textile fabric for a period of time of from about 15 to about 180 minutes results in a treated textile component having a whiteness value on the CIE index of greater than about 70. To the contrary, typical non-finished textile treating methods conducted at or below about 90°C were not effective in obtaining the recited whiteness.

The Examiner has asserted that as Croud et al teach the same method, Croud et al will inherently obtain these properties. However, as discussed above, Croud et al do not teach methods or substrates as presently claimed. In fact, the examples of Croud et al only employ bleaching components which, at the acidic pH of Croud et al, are hydrophilic, rather than hydrophobic as required by the present method claims. Thus, there is no basis for assuming that the presently claimed properties are inherent in the Croud et al teachings.

In view of the failure of Croud et al to teach these limitations, Croud et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate claims 14, 15, 29, 30 and 32 under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

D. Claims 1-15 and 18-33 are Not Anticipated by Showell et al

The methods, products and substrates defined by claims 1-15 and 18-33 are not anticipated by Showell et al.

1. The Rejection

The Examiner asserts that Showell et al teach bleaching compositions for removing stains from textiles and that one of ordinary skill in the art would not make a distinction between stain removal from finished or non-finished textiles. The Examiner further asserts that the bleaching compositions of the reference would inherently be as effective on non-finished textiles as on finished textiles.

2. The Claimed Invention is Not Anticipated

In contrast to the present methods, products and substrates which employ non-finished textile components, Showell et al relate to bleaching and/or laundering of finished textile components, namely garments, and Appellants find no teaching or suggestion in this reference relating to any method, product or substrate employing a non-finished textile component. For example, Showell et al disclose aqueous liquid bleach compositions for laundering soiled clothes, fabrics and the like (column 7, line 66 - column 8, line 8).

The Examiner has asserted that one of ordinary skill in the art would not make a distinction between stain removal from finished or non-finished textiles. Appellants again respectfully disagree. As discussed in detail above and in the background portion of the present application, one of ordinary skill will appreciate that this bleaching treatment is not directed to a soil or stain which has been deposited on a consumer fabric, to which laundry detergents as disclosed by Showell et al are directed, and which are often provided with some form of soil or stain repelling treatment during finishing, but, rather, to color bodies which are inherent to the fibers or textiles and which in the past have required severe bleaching conditions to provide acceptable whiteness or a uniform color base for subsequent dying, often resulting in textile damage.

Moreover, the Showell et al teachings relate to laundering of finished textile components and Appellants find no teaching or suggestion by Showell et al relating to any

method, product or substrate employing a non-finished textile component. Thus, not only would one of ordinary skill in the art make a distinction between stain removal from finished or non-finished textiles, Showell et al provide no teaching of a treatment method for non-finished textiles.

Specifically, Appellants find no teaching by Showell et al of a method as recited in claim 1 "for the preparation of a non-finished textile component" wherein the bleaching solution is allowed to remain in contact with said textile component for a period of time sufficient to bleach the textile component wherein the resultant treated textile component has a whiteness value on the CIE index of at least about 70 or a fiber degradation increase of less than about 25%. Rather, as discussed in the specification, conventional bleaching of non-finished textile components typically results in significantly greater fiber degradation as a result of the rigorous bleaching conditions, or, if mild conditions are employed, does not result in bleaching of the non-finished component.

Further, Appellants find no teaching by Showell et al of a method as defined by claim 18 for batch preparation of a woven textile by providing an incoming non-finished woven fabric, passing the fabric to an aqueous bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating the bleaching solution to a temperature of from about 20 to about 90 °C, and allowing the bleaching solution to contact the fabric for a period of time of from about 15 to about 180 minutes.

Further, Appellants find no teaching by Showell et al of a substrate comprising a collection of non-finished bleached textile components, particularly wherein the substrate has a whiteness value on the CIE index of greater than about 70 and has experienced a fabric strength reduction of less than about 10%, as recited in claim 28. To the contrary, as discussed in the specification, conventional bleaching of non-finished textile components

typically results in significantly greater strength reductions as a result of the rigorous bleaching conditions, or, if mild conditions are employed, does not result in bleaching of the non-finished component to the extent required by claim 28.

Finally, Appellants find no teaching by Showell et al of a method "for improving the wettability loss of textile components," particularly such a method comprising providing an incoming non-finished woven fabric, passing the fabric to an aqueous bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating the bleaching solution to a temperature of from about 20 to about 90 °C, and allowing the bleaching solution to contact the fabric for a period of time of from about 15 to about 180 minutes.

The Examiner further asserted that the bleaching composition of Showell et al would inherently be as effective on non-finished textiles as on finished textiles. Appellants submit that this conclusion is irrelevant to the issue of patentability since, as noted above, Showell et al fail to teach any method, product or substrate employing a non-finished textile component. Moreover, Appellants respectfully assert that this conclusion is incorrect as Showell et al, like Croud et al, employ acidic conditions. For example, Showell et al disclose that the pH of their compositions is in the range of about 2 to 7, more preferably about 3 to 5. As noted above, such acidic conditions can prevent certain bleach activators from exhibiting hydrophobic properties as required by the present claims. Thus, it cannot be assumed that the teachings of Showell et al would inherently result in effective methods if applied to non-finished textiles.

Anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference, *In re Robertson, supra*. In view of the failure of Showell et al to teach methods, products or substrates employing non-finished textile components as required by the present claims, and

the failure of Showell et al to teach the specific limitations of claims 1, 18, 28 and 31, Showell et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate the present claims under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

3. Claims 11, 21 and 25 Are Further Patentably Distinguishable

According to claim 11, the bleaching solution in the method of claim 8 is at a temperature of from about 50 to about 80°C and the textile component remains in contact with said bleaching solution for from about 30 to about 60 minutes. Claim 21 recites that in the method of claim 18, the bleaching solution is at a temperature of from about 50 to about 80°C and the textile component remains in contact with the bleaching solution for from about 30 to about 60 minutes. Claim 25 recites that in the method of claim 18, the bleaching solution is at a temperature of from about 50 to about 80 °C.

Appellants find no teaching of such methods by Showell et al. In fact, Appellants find no teaching by Showell et al of specific treatment temperatures and times, or that the treatment temperatures and times as recited in the claims are sufficient for providing bleaching of a non-finished textile component as required by claim 11. In view of the failure of Showell et al to teach these limitations, Showell et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate claims 11, 21 and 25 under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

4. Claim 12 is Further Patentably Distinguishable

Claim 12 recites that in the method of claim 1, the bleaching solution further comprises from about 0.5 to about 20 g/L of sodium hydroxide. Appellants find no teaching by Showell et al of a method employing sodium hydroxide, particularly in an amount as required by claim 12. In fact, Showell et al's teaching of an acidic pH teaches away from the use of sodium hydroxide. In view of the failure of Showell et al to teach these limitations,

Showell et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate claim 12 under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

5. Claims 14, 15, 29, 30 and 32 Are Further Patentably Distinguishable

Claim 14 recites that in the method of claim 1, the textile component experiences a fabric strength reduction of less than about 10% during said method. According to claim 15, in the method of claim 12, the treated textile component experiences a fiber degradation increase of less than about 25%. Claim 29 recites that in the substrate of claim 28, the treated textile component experiences a fiber degradation increase of less than about 25%. Claim 30 recites that the substrate of claim 28 has a wettability index of less than about 10%. Claim 32 recites that the resultant treated textile component from the method of claim 31 has a whiteness value on the CIE index of greater than about 70.

Appellants find no teaching by Showell et al of a non-finished textile bleaching method providing a fabric strength reduction of less than 10%, as required by claim 14, or a fiber degradation increase of less than about 25%, as required by claim 15. To the contrary, typical bleaching methods for non-finished textiles employing hydrogen peroxide result in significant fabric strength reductions and fiber degradations. Similarly, Appellants find no teaching by Showell et al of a non-finished bleached textile having a whiteness value on the CIE index of greater than about 70 and experiencing a fabric strength reduction of less than about 10% and a fiber degradation increase of less than about 25%, as required by claim 29, or further having a wettability index of less than about 10%, as required by claim 30. The conventional non-finished textile bleaching processes typically sacrifice fabric strength for whiteness or whiteness for fabric strength.

Finally, Appellants find no teaching or suggestion by Showell et al that allowing an aqueous bleaching solution at a temperature of from about 20 to about 90°C and comprising a

mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator to contact non-finished textile fabric for a period of time of from about 15 to about 180 minutes results in a treated textile component having a whiteness value on the CIE index of greater than about 70. To the contrary, typical non-finished textile treating methods conducted at or below about 90°C were not effective in obtaining the recited whiteness.

In view of the failure of Showell et al to teach these limitations, Showell et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate claims 14, 15, 29, 30 and 32 under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

E. Claims 1-15 and 18-33 are Not Anticipated by Francis et al

The methods, products and substrates defined by claims 1-15 and 18-33 are not anticipated by Francis et al.

1. The Rejection

The Examiner asserts that Francis et al teach bleaching compositions for removing stains from textiles and that one of ordinary skill in the art would not make a distinction between stain removal from finished or non-finished textiles. The Examiner further asserts that the bleaching compositions of the reference would inherently be as effective on non-finished textiles as on finished textiles.

2. The Claimed Invention is Not Anticipated

In contrast to the present methods, products and substrates which employ non-finished textile components, Francis et al Francis et al disclose bleaching and detergent compositions which can be used in any cleaning product requiring bleach and/or hygiene properties, such as, for example, laundry detergents, laundry bleaches, household cleaners, toilet bowl cleaners, automatic dishwashing compositions, denture cleaners, etc. (column 13, lines 9-14).

Appellants find no teaching or suggestion in this reference relating to any method, product or substrate employing a non-finished textile component.

The Examiner has asserted that one of ordinary skill in the art would not make a distinction between stain removal from finished or non-finished textiles. Appellants respectfully disagree. As discussed in detail above, a common pretreatment step for natural fibers and textiles thereof is a bleaching step to destroy naturally occurring color bodies in the fibers and textiles. One of ordinary skill will appreciate that this bleaching treatment is not directed to a soil or stain which has been deposited on a consumer fabric or hard surface, to which detergents as disclosed by Francis et al are directed, but, rather, to color bodies which are inherent to the fibers or textiles and which in the past have required severe bleaching conditions to provide acceptable whiteness or a uniform color base for subsequent dying, often resulting in textile damage.

Moreover, Appellants find no teaching or suggestion by Francis et al relating to any method, product or substrate employing a non-finished textile component. Thus, not only would one of ordinary skill in the art make a distinction between stain removal from finished or non-finished textiles, Francis et al provide no teaching of a treatment method for non-finished textiles.

Specifically, Appellants find no teaching by Francis et al of a method as recited in claim 1 "for the preparation of a non-finished textile component" wherein the bleaching solution is allowed to remain in contact with said textile component for a period of time sufficient to bleach the textile component wherein the resultant treated textile component has a whiteness value on the CIE index of at least about 70 or a fiber degradation increase of less than about 25%.

Further, Appellants find no teaching by Francis et al of a method as defined by claim 18 for batch preparation of a woven textile by providing an incoming non-finished woven

fabric, passing the fabric to an aqueous bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating the bleaching solution to a temperature of from about 20 to about 90 °C, and allowing the bleaching solution to contact the fabric for a period of time of from about 15 to about 180 minutes.

Further, Appellants find no teaching by Francis et al of a substrate comprising a collection of non-finished bleached textile components, particularly wherein the substrate has a whiteness value on the CIE index of greater than about 70 and has experienced a fabric strength reduction of less than about 10%, as recited in claim 28. To the contrary, as discussed in the specification, conventional bleaching of non-finished textile components typically results in significantly greater strength reductions as a result of the rigorous bleaching conditions, or, if mild conditions are employed, does not result in bleaching of the non-finished component to the extent required by claim 28.

Finally, Appellants find no teaching by Francis et al of a method "for improving the wettability loss of textile components," particularly such a method comprising providing an incoming non-finished woven fabric, passing the fabric to an aqueous bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating the bleaching solution to a temperature of from about 20 to about 90 °C, and allowing the bleaching solution to contact the fabric for a period of time of from about 15 to about 180 minutes.

The Examiner further asserted that the bleaching composition of Francis et al would inherently be as effective on non-finished textiles as on finished textiles. Appellants submit that this conclusion is irrelevant to the issue of patentability since, as noted above, Francis et al fail to teach any method, product or substrate employing a non-finished textile component.

Anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference, *In re Robertson, supra*. In view of the failure of Francis et al to teach methods, products or substrates employing non-finished textile components as required by the present claims, and the failure of Francis et al to teach the specific limitations of claims 1, 18, 28 and 31, Francis et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate the present claims under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

3. Claims 11, 21 and 25 Are Further Patentably Distinguishable

According to claim 11, the bleaching solution in the method of claim 8 is at a temperature of from about 50 to about 80°C and the textile component remains in contact with said bleaching solution for from about 30 to about 60 minutes. Claim 21 recites that in the method of claim 18, the bleaching solution is at a temperature of from about 50 to about 80°C and the textile component remains in contact with the bleaching solution for from about 30 to about 60 minutes. Claim 25 recites that in the method of claim 18, the bleaching solution is at a temperature of from about 50 to about 80 °C.

Appellants find no teaching of such methods by Francis et al. Rather, the exemplary teachings of Francis et al employ bleaching at 40°C for 30 minutes (column 13, lines22 and 53). Additionally, Appellants find no teaching or suggestion that such treatment temperatures and times as recited in the claims are sufficient for providing bleaching of a non-finished textile component as required by claim 11. In view of the failure of Francis et al to teach these limitations, Francis et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate claims 11, 21 and 25 under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

4. Claim 12 is Further Patentably Distinguishable

Claim 12 recites that in the method of claim 1, the bleaching solution further comprises from about 0.5 to about 20 g/L of sodium hydroxide. Appellants find no teaching by Francis et al of a method employing sodium hydroxide, particularly in an amount as required by claim 12. In view of the failure of Francis et al to teach these limitations, Francis et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate claim 12 under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

5. Claims 14, 15, 29, 30 and 32 Are Further Patentably Distinguishable

Claim 14 recites that in the method of claim 1, the textile component experiences a fabric strength reduction of less than about 10% during said method. According to claim 15, in the method of claim 12, the treated textile component experiences a fiber degradation increase of less than about 25%. Claim 29 recites that in the substrate of claim 28, the treated textile component experiences a fiber degradation increase of less than about 25%. Claim 30 recites that the substrate of claim 28 has a wettability index of less than about 10%. Claim 32 recites that the resultant treated textile component from the method of claim 31 has a whiteness value on the CIE index of greater than about 70.

Appellants find no teaching by Francis et al of a non-finished textile bleaching method providing a fabric strength reduction of less than 10%, as required by claim 14, or a fiber degradation increase of less than about 25%, as required by claim 15. To the contrary, typical bleaching methods for non-finished textiles employing hydrogen peroxide result in significant fabric strength reductions and fiber degradations. Similarly, Appellants find no teaching by Francis et al of a non-finished bleached textile having a whiteness value on the CIE index of greater than about 70 and experiencing a fabric strength reduction of less than about 10% and a fiber degradation increase of less than about 25%, as required by claim 29,

or further having a wettability index of less than about 10%, as required by claim 30. The conventional non-finished textile bleaching processes typically sacrifice fabric strength for whiteness or whiteness for fabric strength.

Finally, Appellants find no teaching or suggestion by Francis et al that allowing an aqueous bleaching solution at a temperature of from about 20 to about 90°C and comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator to contact non-finished textile fabric for a period of time of from about 15 to about 180 minutes results in a treated textile component having a whiteness value on the CIE index of greater than about 70. To the contrary, typical non-finished textile treating methods conducted at or below about 90°C were not effective in obtaining the recited whiteness.

In view of the failure of Francis et al to teach these limitations, Francis et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate claims 14, 15, 29, 30 and 32 under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

F. Claims 1-15 and 18-33 are Not Anticipated by Thompson et al

The methods, products and substrates defined by claims 1-15 and 18-33 are not anticipated by Thompson et al.

1. The Rejection

The Examiner asserts that Thompson et al teach bleaching compositions for removing stains from textiles and that one of ordinary skill in the art would not make a distinction between stain removal from finished or non-finished textiles. The Examiner further asserts that the bleaching compositions of the reference would inherently be as effective on non-finished textiles as on finished textiles.

2. The Claimed Invention is Not Anticipated

In contrast to the present methods, products and substrates which employ non-finished textile components, Thompson et al relate to bleaching and/or laundering of finished textile components. For example, Thompson et al disclose peroxygen bleach activators and bleaching compositions for detergent compositions (abstract) and for removal of stains and/or soils from textiles and, particularly, removal of dingy soils which are a blend of particulate and greasy materials that build up on textiles after numerous washings (column 6, lines 6-14). Appellants find no teaching or suggestion in this reference relating to any method, product or substrate employing a non-finished textile component.

The Examiner has asserted that one of ordinary skill in the art would not make a distinction between stain removal from finished or non-finished textiles. Appellants respectfully disagree. As discussed above, one of ordinary skill will appreciate that the claimed bleaching treatment is not directed to a soil or stain which has been deposited on a consumer fabric, to which Thompson et al are directed, but, rather, to color bodies which are inherent to the fibers or textiles and which in the past have required severe bleaching conditions to provide acceptable whiteness or a uniform color base for subsequent dying, often resulting in textile damage.

Moreover, the Thompson et al teachings relate to laundering of finished textile components and Appellants find no teaching or suggestion by Thompson et al relating to any method, product or substrate employing a non-finished textile component. Thus, not only would one of ordinary skill in the art make a distinction between stain removal from finished or non-finished textiles, Thompson et al provide no teaching of a treatment method for non-finished textiles.

Specifically, Appellants find no teaching by Thompson et al of a method as recited in claim 1 "for the preparation of a non-finished textile component" wherein the bleaching

solution is allowed to remain in contact with said textile component for a period of time sufficient to bleach the textile component wherein the resultant treated textile component has a whiteness value on the CIE index of at least about 70 or a fiber degradation increase of less than about 25%.

Further, Appellants find no teaching by Thompson et al of a method as defined by claim 18 for batch preparation of a woven textile by providing an incoming non-finished woven fabric, passing the fabric to an aqueous bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating the bleaching solution to a temperature of from about 20 to about 90 °C, and allowing the bleaching solution to contact the fabric for a period of time of from about 15 to about 180 minutes.

Further, Appellants find no teaching by Thompson et al of a substrate comprising a collection of non-finished bleached textile components, particularly wherein the substrate has a whiteness value on the CIE index of greater than about 70 and has experienced a fabric strength reduction of less than about 10%, as recited in claim 28. To the contrary, as discussed in the specification, conventional bleaching of non-finished textile components typically results in significantly greater strength reductions as a result of the rigorous bleaching conditions, or, if mild conditions are employed, does not result in bleaching of the non-finished component to the extent required by claim 28.

Finally, Appellants find no teaching by Thompson et al of a method "for improving the wettability loss of textile components," particularly such a method comprising providing an incoming non-finished woven fabric, passing the fabric to an aqueous bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating the bleaching solution to a temperature of from about

20 to about 90 °C, and allowing the bleaching solution to contact the fabric for a period of time of from about 15 to about 180 minutes.

The Examiner further asserted that the bleaching composition of Thompson et al would inherently be as effective on non-finished textiles as on finished textiles. Appellants submit that this conclusion is irrelevant to the issue of patentability since, as noted above, Thompson et al fail to teach any method, product or substrate employing a non-finished textile component.

Anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference, *In re Robertson, supra*. In view of the failure of Thompson et al to teach methods, products or substrates employing non-finished textile components as required by the present claims, and the failure of Thompson et al to teach the specific limitations of claims 1, 18, 28 and 31, Thompson et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate the present claims under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

3. Claims 11, 21 and 25 Are Further Patentably Distinguishable

According to claim 11, the bleaching solution in the method of claim 8 is at a temperature of from about 50 to about 80°C and the textile component remains in contact with said bleaching solution for from about 30 to about 60 minutes. Claim 21 recites that in the method of claim 18, the bleaching solution is at a temperature of from about 50 to about 80°C and the textile component remains in contact with the bleaching solution for from about 30 to about 60 minutes. Claim 25 recites that in the method of claim 18, the bleaching solution is at a temperature of from about 50 to about 80 °C.

Appellants find no teaching of such methods by Thompson et al. Rather, the exemplary teachings of Thompson et al employ testing procedures described in U.S. Patent

No. 4,412,934, which uses a testing temperature of 37.5°C for 12 minutes (column 31, lines 21-24). Additionally, Appellants find no teaching or suggestion that such treatment temperatures and times as recited in the claims are sufficient for providing bleaching of a non-finished textile component as required by claim 11. In view of the failure of Thompson et al to teach these limitations, Thompson et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate claims 11, 21 and 25 under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

4. Claim 12 is Further Patentably Distinguishable

Claim 12 recites that in the method of claim 1, the bleaching solution further comprises from about 0.5 to about 20 g/L of sodium hydroxide. Appellants find no teaching by Thompson et al of a method employing sodium hydroxide, particularly in an amount as required by claim 12. In view of the failure of Thompson et al to teach these limitations, Thompson et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate claim 12 under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

5. Claims 14, 15, 29, 30 and 32 Are Further Patentably Distinguishable

Claim 14 recites that in the method of claim 1, the textile component experiences a fabric strength reduction of less than about 10% during said method. According to claim 15, in the method of claim 12, the treated textile component experiences a fiber degradation increase of less than about 25%. Claim 29 recites that in the substrate of claim 28, the treated textile component experiences a fiber degradation increase of less than about 25%. Claim 30 recites that the substrate of claim 28 has a wettability index of less than about 10%. Claim 32 recites that the resultant treated textile component from the method of claim 31 has a whiteness value on the CIE index of greater than about 70.

Appellants find no teaching by Thompson et al of a non-finished textile bleaching method providing a fabric strength reduction of less than 10%, as required by claim 14, or a fiber degradation increase of less than about 25%, as required by claim 15. To the contrary, typical bleaching methods for non-finished textiles employing hydrogen peroxide result in significant fabric strength reductions and fiber degradations. Similarly, Appellants find no teaching by Thompson et al of a non-finished bleached textile having a whiteness value on the CIE index of greater than about 70 and experiencing a fabric strength reduction of less than about 10% and a fiber degradation increase of less than about 25%, as required by claim 29, or further having a wettability index of less than about 10%, as required by claim 30. The conventional non-finished textile bleaching processes typically sacrifice fabric strength for whiteness or whiteness for fabric strength.

Finally, Appellants find no teaching or suggestion by Thompson et al that allowing an aqueous bleaching solution at a temperature of from about 20 to about 90°C and comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator to contact non-finished textile fabric for a period of time of from about 15 to about 180 minutes results in a treated textile component having a whiteness value on the CIE index of greater than about 70. To the contrary, typical non-finished textile treating methods conducted at or below about 90°C were not effective in obtaining the recited whiteness.

In view of the failure of Thompson et al to teach these limitations, Thompson et al do not disclose each and every claimed element, either expressly or inherently described, and therefore do not anticipate claims 14, 15, 29, 30 and 32 under 35 U.S.C. §102. Accordingly, the rejection should be reversed.

IV. CONCLUSIONS

In view of the above, the methods, products and substrates defined by claims 1-33 are not anticipated by any of Willey et al, Croud et al, Showell et al, Francis et al or Thompson et al, whereby the rejections under 35 U.S.C. §102(b) should be reversed. Favorable action by the Board is respectfully requested.

Respectfully submitted,


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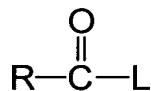
APPENDIX

1. A method for the preparation of a non-finished textile component comprising the steps of providing a non-finished textile component, saturating said textile component with an aqueous bleaching solution comprising hydrogen peroxide and a hydrophobic bleaching agent, and allowing said bleaching solution to remain in contact with said textile component for a period of time sufficient to bleach said textile component wherein the resultant treated textile component has a whiteness value on the CIE index of at least about 70 or a fiber degradation increase of less than about 25%.

2. The method as claimed in Claim 1 wherein said hydrophobic bleaching agent is a hydrophobic bleach activator or a hydrophobic pre-formed peracid.

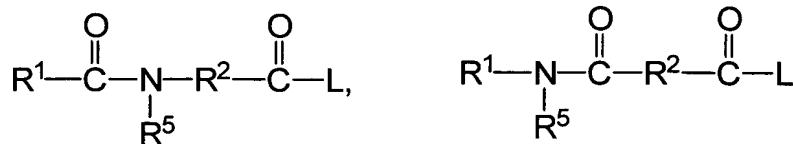
3. The method as claimed in Claim 2 wherein said bleaching solution comprises hydrogen peroxide and a hydrophobic bleach activator selected from the group consisting of:

a) a bleach activator of the general formula:



wherein R is an alkyl chain having from about 5 to about 17 carbon atoms and L is a leaving group:

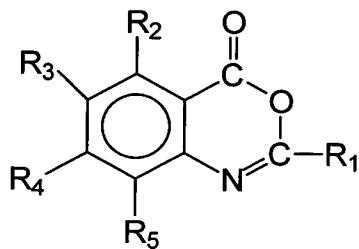
b) a bleach activator of the general formula:



or mixtures thereof, wherein R¹ is an alkyl, aryl, or alkaryl group containing from about 1 to about 14 carbon atoms, R² is an alkylene, arylene or alkarylene group containing from about

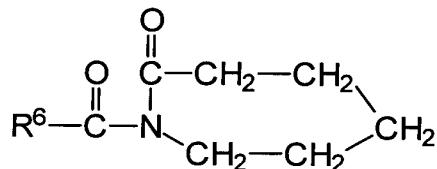
1 to about 14 carbon atoms, R⁵ is H or an alkyl, aryl, or alkaryl group containing from about 1 to about 10 carbon atoms, and L is a leaving group;

c) a benzoxazin-type bleach activator of the formula:



wherein R₁ is H, alkyl, alkaryl, aryl, or arylalkyl, and wherein R₂, R₃, R₄, and R₅ may be the same or different substituents selected from the group consisting of H, halogen, alkyl, alkenyl, aryl, hydroxyl, alkoxy, amino, alkylamino, -COOR₆, wherein R₆ is H or an alkyl group, and carbonyl;

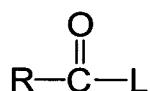
d) a N-acyl caprolactam bleach activator of the formula:



wherein R⁶ is H or an alkyl, aryl, alkoxyaryl, or alkaryl group containing from 1 to 12 carbons; and

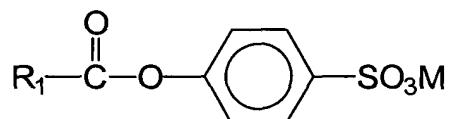
e) mixtures of a, b, c and d.

4. The method as claimed in Claim 3 wherein said hydrophobic bleach activator is a bleach activator selected from the general formula:



wherein R is an alkyl chain having from about 7 to about 12 carbon atoms and L is a leaving group, the conjugate acid of which has a pKa from about 4 to about 13.

5. The method as claimed in Claim 4 wherein said bleach activator is an alkanoyloxybenzenesulfonate of the formula:



wherein R₁ is an alkyl group having from about 7 to about 11 carbon atoms and M is a suitable cation.

6. The method as claimed in Claim 1 wherein said bleaching solution further includes an ingredient selected from the group consisting of wetting agents, sequestering agents, stabilizing agents, desizing agents, scouring agents and mixtures thereof.

7. The method as claimed in Claim 3 wherein said bleaching solution contains from about 1 to about 20 g/L of hydrogen peroxide.

8. The method as claimed in Claim 3 wherein the molar ratio of hydrophobic bleach activator to hydrogen peroxide in said bleaching solution ranges from about 1:1 to about 1:50.

9. The method as claimed in Claim 1 wherein said textile component remains in contact with said bleaching solution for from about 15 to about 180 minutes.

10. The method as claimed in Claim 9 wherein said bleaching solution is at a temperature of from about 20 to about 90 °C .

11. The method as claimed in Claim 8 wherein said bleaching solution is at a temperature of from about 50 to about 80°C and said textile component remains in contact with said bleaching solution for from about 30 to about 60 minutes.

12. The method as claimed in Claim 1 wherein said bleaching solution further comprises from about 0.5 to about 20 g/L of sodium hydroxide.

13. The method as claimed in Claim 8 wherein the ratio of said bleaching solution to said textile component is from about 5:1 to about 100:1.

14. The method as claimed in Claim 1 wherein said textile component experiences a fabric strength reduction of less than about 10% during said method.

15. The method as claimed in Claim 12 wherein said treated textile component experiences a fiber degradation increase of less than about 25%.

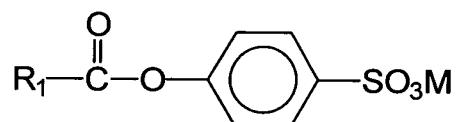
16. The method as claimed in Claim 1 further comprising the step of de-sizing said non-finished textile component prior to contact with said bleaching solution.

17. The method as claimed in Claim 1 further comprising the step of scouring said non-finished textile component prior to contact with said bleaching solution.

18. A method for the batch preparation of a woven textile fabric comprising the steps of:

a) providing an incoming non-finished woven fabric;
b) passing said fabric to an aqueous bleaching solution, said bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating said bleaching solution to a temperature of from about 20 to about 90 °C and allowing said bleaching solution to contact said fabric for a period of time of from about 15 to about 180 minutes.

19. The method as claimed in Claim 18 wherein said bleach activator is an alkanoyloxybenzenesulfonate of the formula:



wherein R₁ has from about 5 to about 17 carbon atoms and M is a suitable cation.

20. The method as claimed in Claim 18 wherein said bleaching solution further includes an ingredient selected from the group of wetting agents, sequestering agents, stabilizing agents, de-sizing agents, scouring agents and mixtures thereof.

21. The method as claimed in Claim 18 wherein said bleaching solution is at a temperature of from about 50 to about 80°C and said textile component remains in contact with said bleaching solution for from about 30 to about 60 minutes.

22. The method as claimed in Claim 18 wherein said bleaching solution contains from about 1 to about 20 g/L of hydrogen peroxide.

23. The method as claimed in Claim 18 wherein the molar ratio of hydrophobic bleach activator to hydrogen peroxide in said bleaching solution ranges from about 1:1 to about 1:50.

24. The method as claimed in Claim 18 wherein said textile component remains in contact with said bleaching solution for from about 30 to about 60 minutes.

25. The method as claimed in Claim 18 wherein said bleaching solution is at a temperature of from about 50 to about 80 °C.

26. The product produced by the process of Claim 1.

27. The product produced by the process of Claim 18.

28. A substrate comprising a collection of non-finished bleached textile components wherein said substrate has a whiteness value on the CIE index of greater than about 70 and has experienced a fabric strength reduction of less than about 10%.

29. The substrate as claimed in Claim 28 wherein said treated textile component experiences a fiber degradation increase of less than about 25%.

30. The substrate as claimed in Claim 28 wherein said substrate has a wettability index of less than about 10%.

31. A method for improving the wettability loss of textile components comprising the steps of:

a) providing an incoming non-finished woven fabric;
b) passing said fabric to an aqueous bleaching solution, said bleaching solution comprising a mixture of hydrogen peroxide and a hydrophobic bleach activator or a pre-formed hydrophobic activator, heating said bleaching solution to a temperature of from about 20 to about 90 °C and allowing said bleaching solution to contact said fabric for a period of time of from about 15 to about 180 minutes.

32. The method as claimed in Claim 1 wherein said resultant treated textile component has a whiteness value on the CIE index of greater than about 70.

33. The method as claimed in Claim 1 wherein said non-finished textile component fibers are selected from the group consisting of cotton, linen, jute, wool, silk, rayon, lyocell and combinations thereof.